

## ABSTRACT OF THE DISCLOSURE

A catoptric projection optical system for projecting a reduced size of a pattern on an object surface onto an image surface and for serving as an imaging system that forms an intermediate image between the object surface and image surface, includes six or more mirrors, wherein a position of an exit pupil with respect to the intermediate image is located between the object surface and image surface, and wherein the largest angle between principal rays and an optical axis for angles of view at the position of the exit pupil is  $\sin^{-1}NA$  or smaller, where NA is a numerical aperture at the side of the image surface.

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